

## MATHEMATICS

### Numbers and calculations

- natural numbers, whole numbers, rational numbers, real numbers
- opposite numbers, absolute values, reciprocals
- time calculations, time arrivals
- prime numbers, division of numbers into prime factors, rules for divisibility of numbers
- reduction of fractions, conversion of fractions to higher terms and presentation of decimal fractions as common fractions
- multiplication and division with fractions, including decimal fractions
- reduction of expressions
- ratio and proportionality
- the concept of percentage, percentage calculation
- rounding and estimation; using a calculator
- powers using whole-number exponents
- concept of the root, square-root calculations

### Algebra

- the expression and its reduction
- the exponential expression and its reduction
- concept of the polynomial; addition, subtraction and multiplication of polynomials
- concept of the variable; calculating the value of an expression
- equation, inequality, domain, solution, etc.
- solving a first-degree equation
- solving an incomplete quadratic equation
- proportion
- pairs of equations and their resolution algebraically and graphically
- study and formulation of number sequences

### Functions

- observing correlation and presenting it by means of variables
- concept of the function
- presenting a set of coordinates in a coordinate system
- interpreting simple functions and drawing their graph in a coordinate system
- investigating the graph of a function: the function's null point, largest and smallest value, increase and decrease
- the linear function
- direct and inverse proportionality

### Geometry

- relationships between angles
- concepts related to triangles and quadrangles
- regular polygons
- the circle and related concepts

- calculating the perimeter and area of plane figures
- naming and classifying three-dimensional figures
- calculating the volume and surface area of the three dimensional figure
- similarity and congruence
- geometric construction
- depictions of congruence: reflections, rotations and transformation
- Pythagorean theorem
- relationships between triangle and circle
- trigonometry and solving the right triangle

#### Probability and statistics

- concept of probability
- frequency and relative frequency
- determining the average, mode and median
- concept of dispersion
- interpretation of diagrams
- gathering and adapting information and presenting it in usable form